

Java™ for OS/2

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Warpstock 2002, Austin TX
October 5-6, 2002

Java on OS/2

■ Topics

- ▲ Overview of Java on OS/2
- ▲ Adapting Java for OS/2
- ▲ Installation and usage hints
- ▲ JavaComm for OS/2
- ▲ Java Features (new)
 - ▶ Java Web Start
 - ▶ XML Parser for Java

Java for OS/2

■ release history...

- ▲ Java 1.0.1 (1996) Warp 4 GA
- ▲ Java 1.0.2 (1997)
- ▲ Java 1.1.x (1998 - 1999)
- ▲ Java 1.3.0 (2000)
- ▲ Java 1.3.1 (2002)

Java for OS/2

■ JDK Components

- ▲ Runtime (JRE)
- ▲ Toolkit
- ▲ Samples
- ▲ ICATJAVA debugger

■ Other Packages

- ▲ JavaComm
- ▲ World Type Fonts
- ▲ Java Web Start
- ▲ XML Parser for Java

Java for OS/2

- \java131\
 - jre\
 - bin\ JRE executables (e.g., java)
 - dll\ C-runtime (in LIBPATH)
 - lib JRE resources
 - bin\ Toolkit (e.g., javac)
 - lib\ Toolkit
 - include\ Toolkit
 - docs\ Toolkit (JAAS, RMI-IIOP)
 - demo\ Samples
 - icatjava\ ICATJAVA debugger

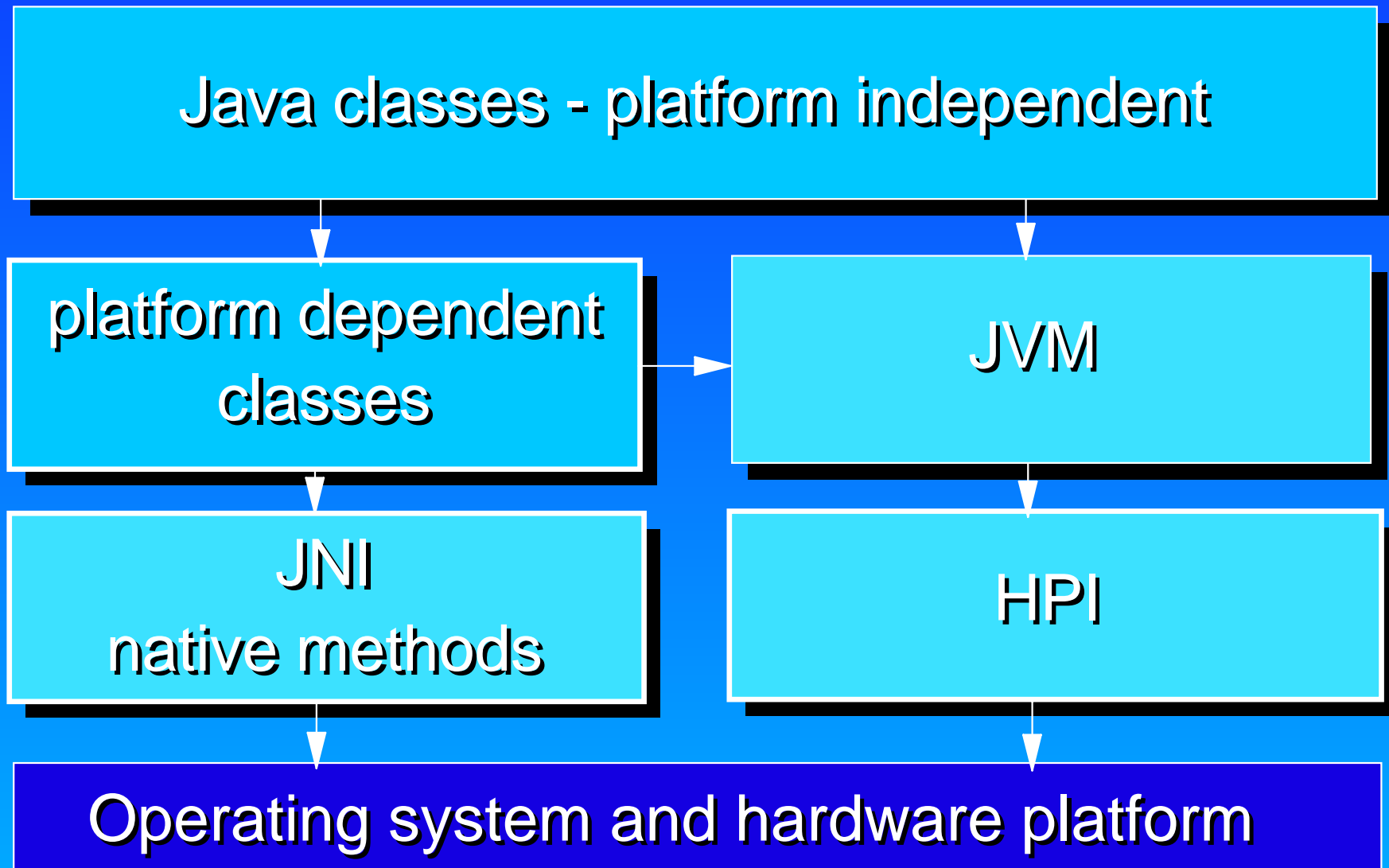
Adapting Java for OS/2

- JRE may be on FAT drive
 - ▲ implies 8.3 file naming
 - ▲ *no classes renamed...*
 - ▶ classes in JAR files with 8.3 names
 - ▲ executables, resource files renamed
 - ▶ e.g., appletviewer.exe => applet.exe
 - ▶ policytool.exe => policy.exe
 - ▶ e.g., font.properties.de => f_de.prp
- Toolkit, Samples must be on HPFS or JFS drive

Adapting Java for OS/2

- **Shared code base with other IBM Java platforms**
 - ▲ **Windows, AIX, Linux, S/390, ...**
- **Basically same JVM, GC, JIT, Swing, Java2D, etc., with platform hooks**
- **Greatest difference in AWT**

Adapting Java for OS/2



Adapting Java for OS/2

IBM JIT

JIT front-end (cross-platform)
intf to JVM, compilation

JIT back-end (machine dependent) code gen, execution

Intel x86

Itanium

PPC

PPC64

S/390

...

OS/2

Win

Linux

AIX

O/S specific startup,
exception handling

Adapting Java for OS/2

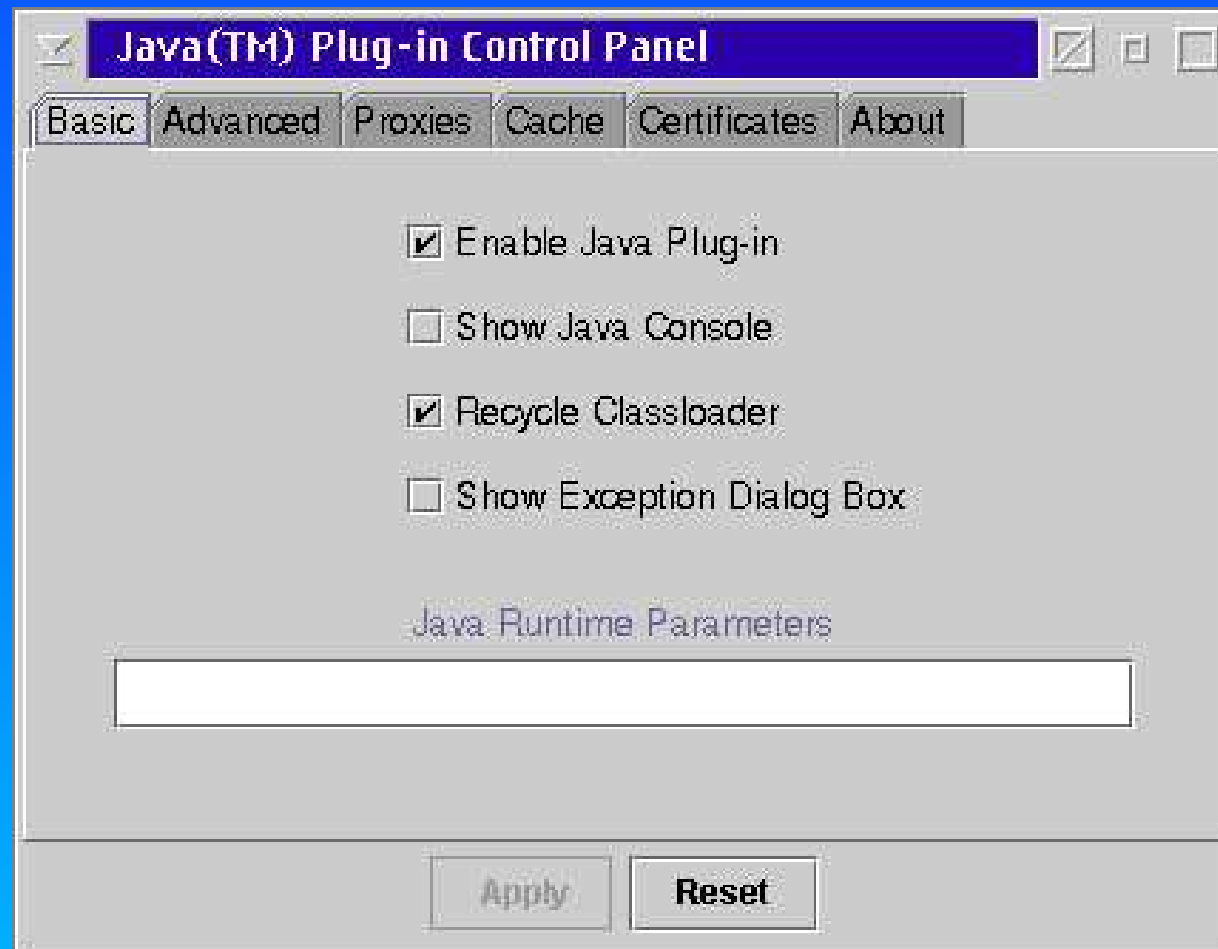
- **must pass Java Certification Kit (JCK) testsuite to use Java logo**
 - ▲ **no exceptions!**
- **extensive Sun and IBM regression testsuites also used**
- **JCK and regression tests run for each service release as well as GA release**

Java Plug-ins on OS/2

- Netscape 4.6 - *npjava.dll*
 - ▲ <applet> uses Java 1.1.x only
 - ▲ <embed> uses Java 1.3.x plugin
 - ▶ use htmlconverter to convert html pages from <applet> to <embed> mechanism
- IBM Web Browser - *npoji6.dll*
 - ▲ always uses Java 1.3.x plugin
 - ▲ converts <applet> to <embed> internally

Java Plug-ins on OS/2

- **Java Plug-in ControlPanel**
 - ▲ **jctrlpnl.cmd**



Java Toolkit Installation

- **common problem...**
 - ▲ **Runtime already installed and/or Toolkit extracted in separate subdirectory**
 - ▲ **...Toolkit install checkbox not enabled**
- **must extract Runtime (javainrt.exe) and Toolkit (javaintk.exe) in same install subdirectory**

Default JVM

- Old versions of TCP/IP and LVMGUI did not work with 1.3.x
 - ▲ IBM recommended not making Java 1.3 the default JVM
 - ▲ These issues resolved with CP2 (but also consider customer applications with similar issues)
- Default JVM determined by PATH, CLASSPATH
 - ▲ use CMD file to set environment for desired Java version

Default JVM

■ Java 1.3.1

```
PATH=d:\java131\jre\bin;d:\java131\bin;%PATH%  
BEGINLIBPATH=d:\java131\jre\bin;d:\java131\jre\dll  
CLASSPATH=
```

■ Java 1.1.x

```
PATH=d:\java11\bin;%PATH%  
BEGINLIBPATH=d:\java11\dll  
CLASSPATH=d:\java11\lib\classes.zip;  
           d:\java11\swing\swingall.jar
```

Debugging Java on OS/2

- ICATJAVA
- _g versions of executables
 - ▲ e.g., java_g.exe
- java command options
 - ▲ e.g., java -verbose:class
 - verbose:gc
 - verbose:jni
 - Xcheck:jni
 - Xcheck:nabounds
 - Xrunhprof

JavaComm for OS/2

- **Serial/Parallel port support**
- **javacomm.zip install package**
 - ▲ **unzip in JDK directory \java131**
 - **docs\javacomm\readme.htm**
 - **jre\bin\ibmcomm.dll**
 - **jre\lib\ext\comm.jar**
 - **jre\lib\javacomm.prp**

Java Features on OS/2

■ Java Web Start

- ▲ based on Sun's version 1.0.1
- ▲ shared code base used for IBM Java 1.4 on other platforms

■ XML Parser for Java

- ▲ based on xerces (XML) and xalan (XSL) from apache.org
- ▲ previous versions available from IBM developerWorks
- ▲ same version used with IBM Java 1.4 on other platforms

Java Features installation

- **Feature Install - based**
 - ▲ consistent with JDK installation
 - ▲ unattended CID install provided
- **self-extracting install package**
 - ▲ javainws.exe
- **detects installed JREs (1.3.0, 1.3.1)**
 - ▲ also allows explicit JRE specification
- **install Web Start and/or XML Parser**

Java Features installation

Component Selection

Select the components, target paths, and options that you want.

Note: The Java™ Web Start component REQUIRES an HPFS or JFS installation drive.



Confirm or specify path to existing Java Runtime Environment (JRE). Java Web Start will use this as its primary JRE. XML Parser will be installed as an extension for this JRE. *The JRE version must be Java 1.3 or later.*

Path to JRE:

E:\JAVAI3\re

Components:

☒ **Java Web Start**

E: \webstart

☒ XML Parser for Java

Options:

☒ **Configure Netscape 4.6 for Java Web Start**

☒ **Configure IBM® Web Browser for Java Web Start**

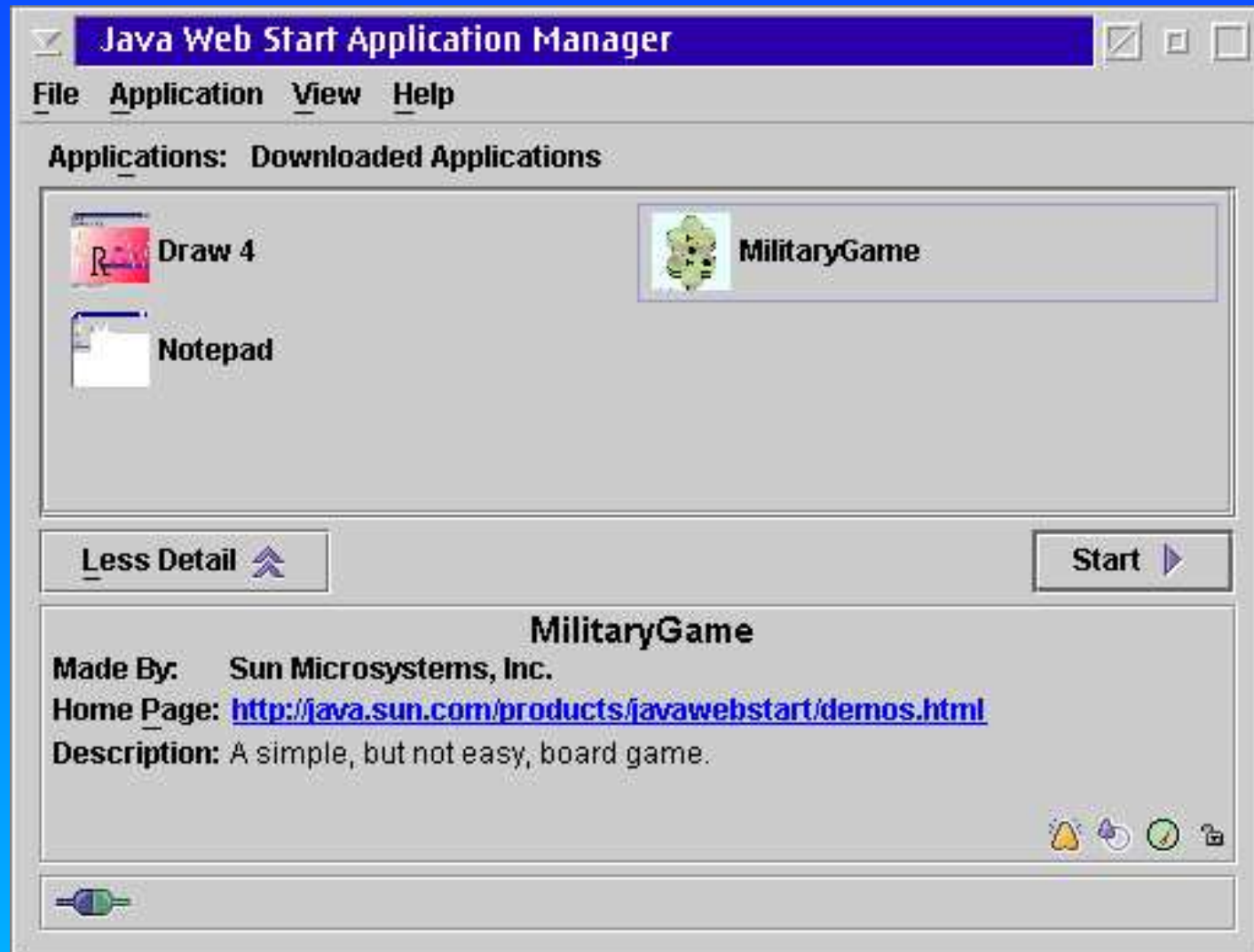
Java Web Start

- **Java application deployment technology**
- **based on JNLP**
 - ▲ **Java Network Launching Protocol**
- **launch remote Java applications**
 - ▲ **via browser**
 - ▲ **via Java Web Start application manager GUI**
- **downloaded applications saved in cache**
 - ▲ **reduce subsequent download time**
 - ▲ **allows off-line operation**
- **desktop integration**
 - ▲ **shortcuts can be created for downloaded applications**

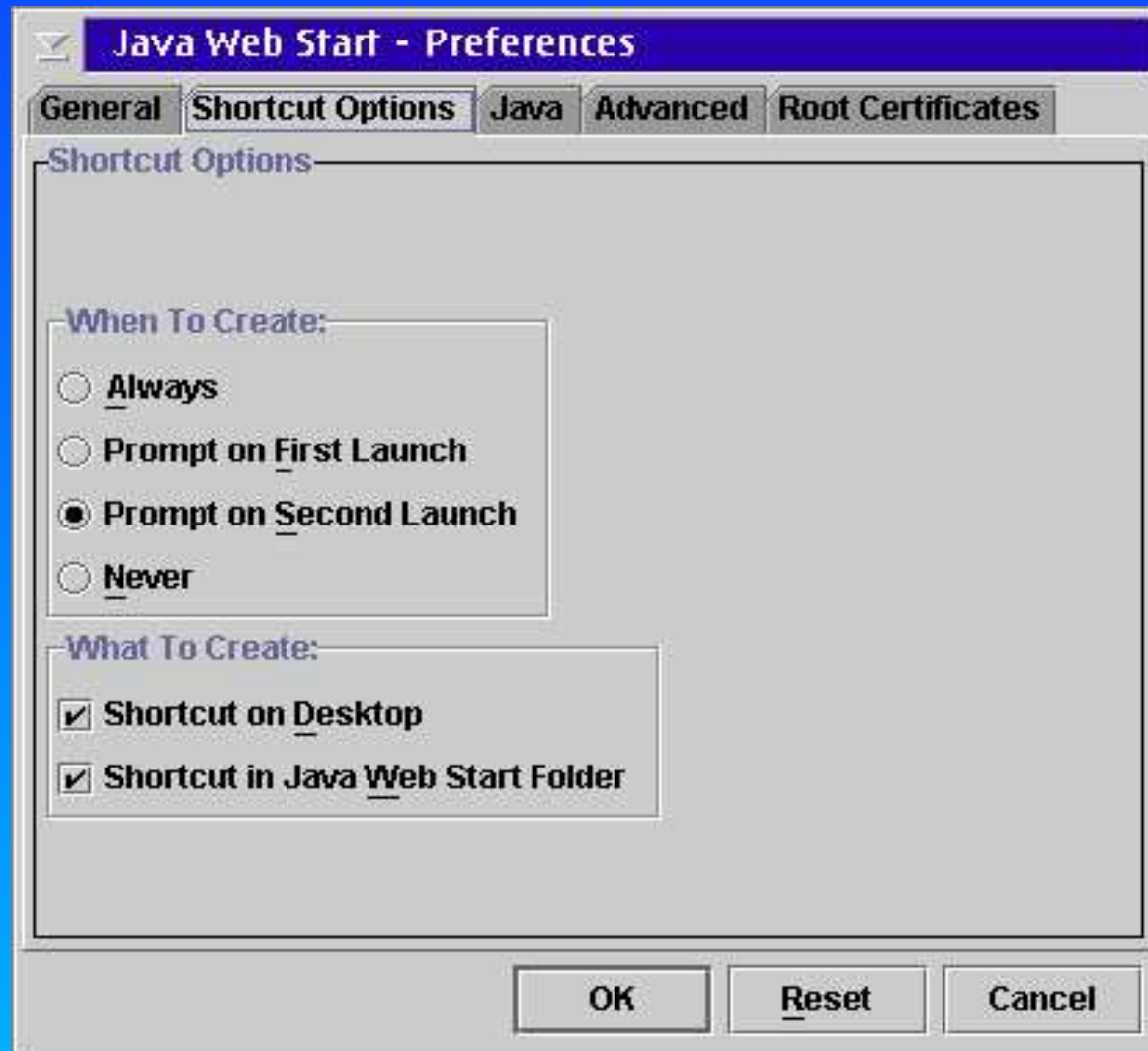
Java Web Start on OS/2

- Operates virtually identically to Sun version on Windows, except...
 - ▲ OS/2 version does not automatically download and install a specific JRE
 - ▶ limited JRE versions on OS/2
 - ▶ JREs must already be installed
 - ▲ Windows allows shortcuts on desktop and/or Start menu, while OS/2 creates shortcuts on desktop and/or Java Web Start folder (No shortcuts on WSOD)

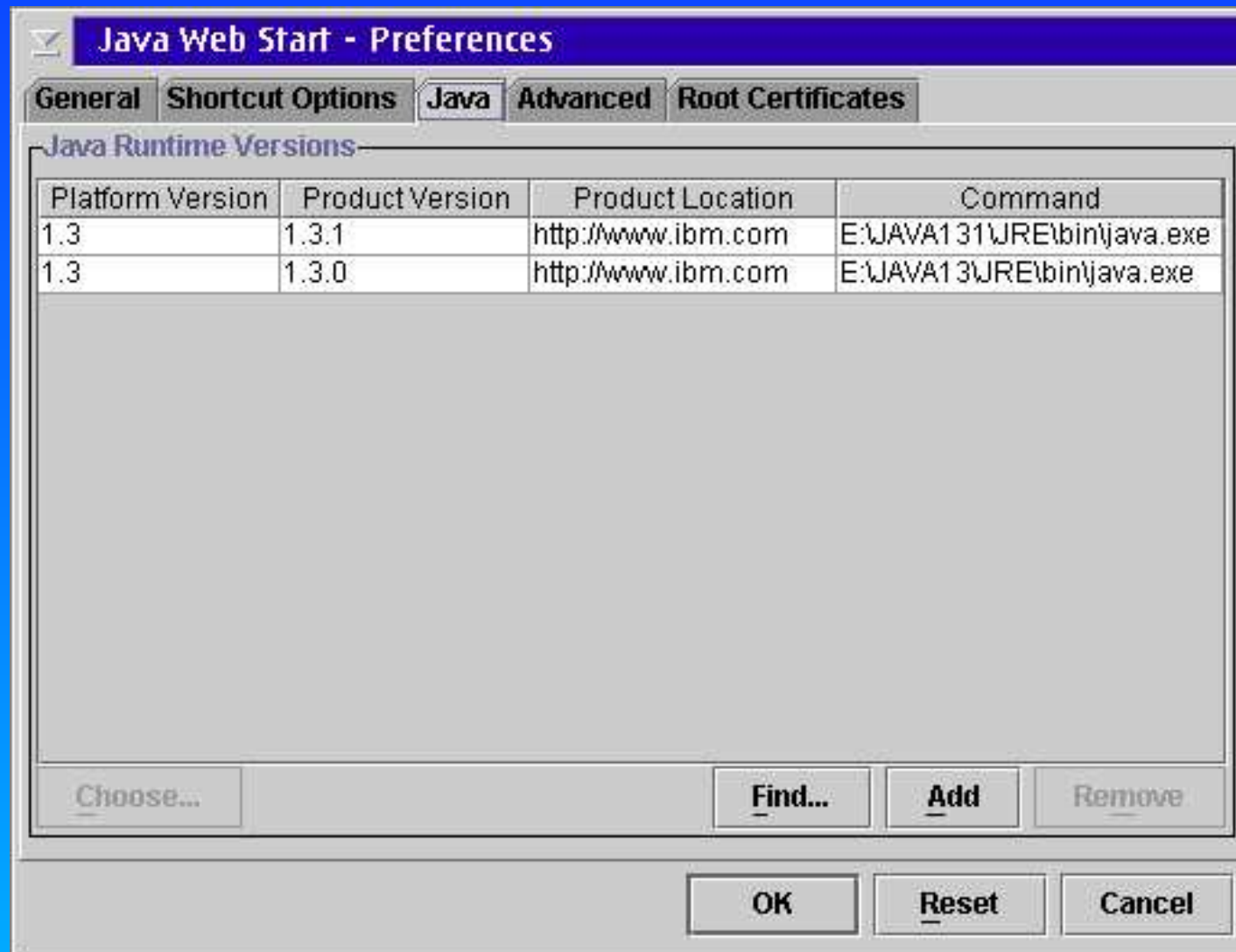
Java Web Start on OS/2



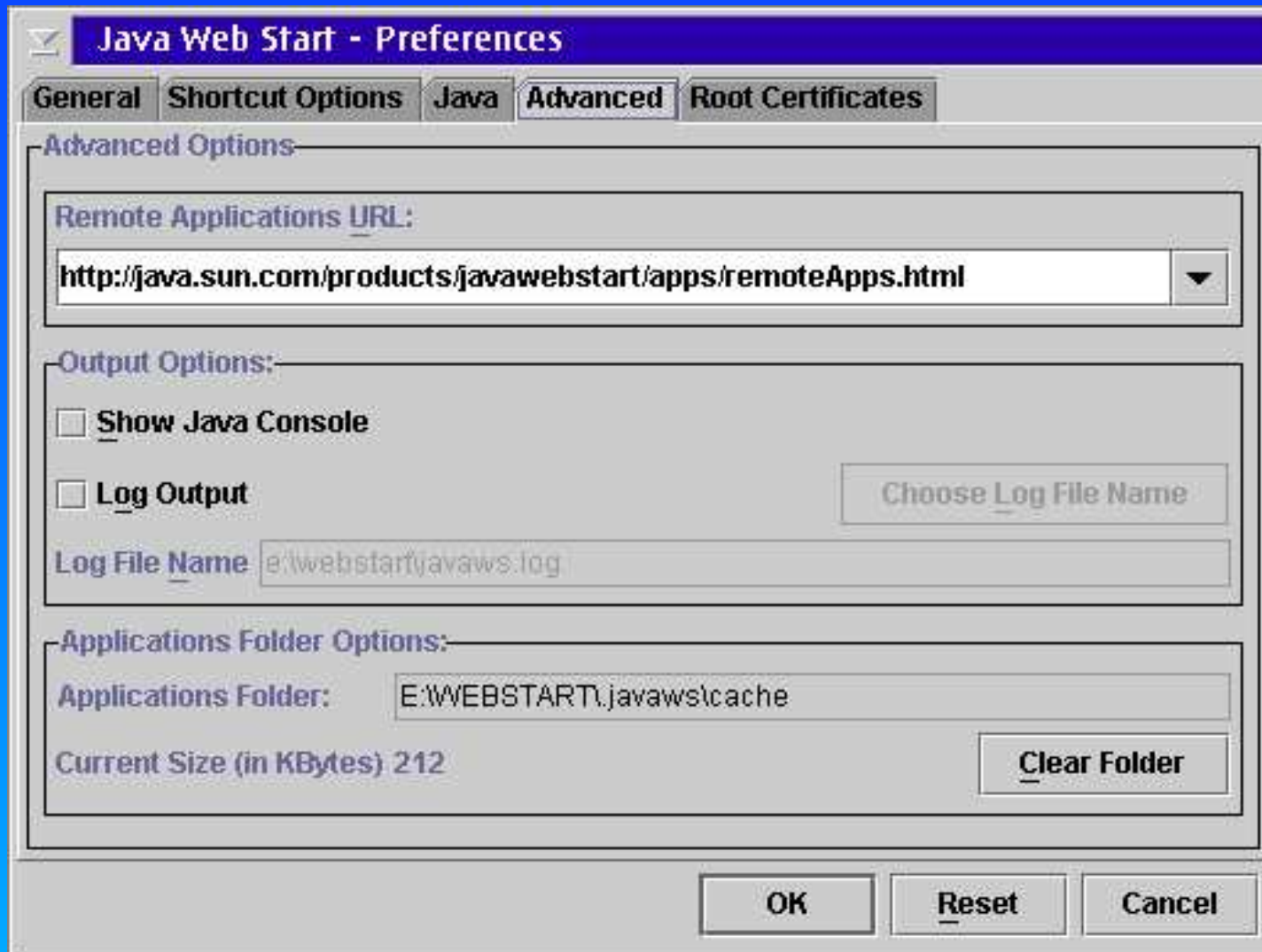
Java Web Start on OS/2



Java Web Start on OS/2



Java Web Start on OS/2



Java Web Start

- **javaws [jnlp file | jnlp URL]**
 - ▲ omit parameter brings up Application Manager GUI
 - **javaws.exe acts as browser helper**
 - ▲ associate with JNLP MIME type (by install, or manually)
- application/x-java-jnlp-file**
- **javaws.exe also given file association on OS/2 to jnlp and jnl file extensions**

Java Web Start

- JNLP file is an XML file specifying an application and its resources

```
<jnlp>  
  <information>  
    <title>  
    <vendor>  
    <homepage>  
    <description>  
    <icon>  
    <offline-allowed>  
  <resources>  
    <j2se>  
    <jar>
```

- Web Server must be configured for JNLP MIME type

Java Web Start

- Application can specify JRE version in JNLP file
 - ▲ typically `<j2se version="1.3+"/>`
 - ▶ any 1.3 platform JRE ok - choose first
 - ▲ `<j2se version="1.3.1"/>` not valid
 - ▶ "1.3.1" is not a valid platform version
 - ▲ `<j2se version="1.3.1" href="http://www.ibm.com"/>`
 - ▶ "1.3.1" is IBM product version on OS/2
 - ▶ application will launch *only* with Java 1.3.1

XML Parser for Java

■ Three JAR files added in jre\lib\ext

- ▲ xml-apis.jar
- ▲ xercesIm.jar (8.3 rename of xercesImpl.jar)
- ▲ xalan.jar

■ Supports...

- ▲ Java API for XML Processing (JAXP) 1.1
- ▲ Document Object Model (DOM) 2.0
- ▲ Simple API for XML Parsing (SAX) 2.0
- ▲ XML Stylesheet Language Transform (XSLT)
- ▲ XML Schema (W3C Recommendations)

Further information

- **IBM Software Choice**

<http://www.ibm.com/software/os/warp/swchoice>

- **Sun Microsystems**

<http://java.sun.com>

- **Apache**

<http://xml.apache.org>

- **IBM Corp.**

<http://www.ibm.com/developerworks>